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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,348	12/21/2001	Darrell K. Cox	TI-29875	8102
23494	7590	08/24/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			DILDINE JR, R STEPHEN	
			ART UNIT	PAPER NUMBER
			2133	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/026,348

Applicant(s)

COX, DARRELL K.

Examiner

R. Stephen Dildine

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 8, 12, 13, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 3, 5-7, 9-11, 14-19 AND 22-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3 July, 2004
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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**Drawings**

Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (i.e. a Texas Instruments Incorporated C60 series digital signal processor, see page 9, lines 20-21). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 8, 12-13 and 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuwazoe et al. (2002/0078419). The disclosure of Kuwazoe et al. is applied to applicant's claims 1-2, 4 and 8 as follows: 9

Applicant's Claim 1	Kuwazoe et al.
calculating candidate path metrics for states at time $T_n$ based on previously calculated path metrics for states at time $T_{n-1}$ and branch metrics associated with transitions between said states at time $T_{n-1}$ and states at time $T_n$ according to a first trellis	the decoder computes a metric based on a received word or received data for each of paths through which such state transitions occur. [0007]
selecting path metrics for states at time $T_n$ from said candidate path metrics	A path with a minimum cumulated metric, that is, a path with a maximum likelihood, is selected as a probable path. [0007]
calculating candidate path metrics for states at $T_{n+1}$ based on said selected path metrics for states at $T_n$ according to a second trellis, different from said first trellis	See Fig. 6
Applicant's Claim 2	Kuwazoe et al.
wherein said step of calculating candidate path metrics according to a first trellis comprises the step of simultaneously calculating path metrics for a group of states at $T_n$	FIG. 7 is a trellis diagram used for explaining operations for a case in which metric values for 4 states in a transition from a time (t-1) to a time t are computed in a simple way at the same time. [0031]

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**Applicant's Claim 8****Kuwazoe et al.**

wherein said step of calculating candidate path metrics according to a second trellis comprises the step of simultaneously calculating path metrics for a group of states at  $T_{n+1}$ .

Much like the trellis computation shown in FIG. 6, 2 pieces of processing, namely, processing A and next processing B, are carried out in 1 unit time or with 1 processing timing. [0031]

**Applicant's Claim 12****Kuwazoe et al.**

programmable processing circuitry

The trellis-computation-processing control unit 213 controls trellis computation processing carried out in the computation unit 220 [0011]

calculating candidate path metrics for states at time  $T_n$  based on previously calculated path metrics for states at time  $T_{n-1}$

a path-metric-memory control unit 212 [0011]

and branch metrics associated with transitions between said states at time  $T_{n-1}$  and states at time  $T_n$  according to a first trellis

state-metric-memory control unit 211 [0011]

selecting path metrics for states at time  $T_n$  from said candidate path metrics; calculating candidate path metrics for states at  $T_{n+1}$  based on said selected path metrics for states at  $T_n$  according to a second trellis, different from said first trellis

See Fig. 6

**Applicant's Claim 13****Kuwazoe et al.**

wherein said programmable processing circuitry calculates candidate path metrics according to a first trellis by simultaneously calculating path metrics for a group of states at  $T_n$ .

Much like the trellis computation shown in FIG. 6, 2 pieces of processing, namely, processing A and next processing B, are carried out in 1 unit time or with 1 processing timing. [0031]

**Applicant's Claim 20****Kuwazoe et al.**

wherein said programmable processing circuitry calculates candidate path metrics according to a second trellis by simultaneously calculating path metrics for a group of states at  $T_{n+1}$ .

Much like the trellis computation shown in FIG. 6, 2 pieces of processing, namely, processing A and next processing B, are carried out in 1 unit time or with 1 processing timing. [0031]

**Applicant's Claim 21****Kuwazoe et al.**

wherein said programmable processing circuitry repeats calculating path metrics for a group of states at  $T_n$  until path metric candidates for all states at  $T_{n+1}$  are generated.

The trellis computation parallel processing is carried out repeatedly as many times as  $[2^{(m-1)}]$  states/4 to compute present metric values for all the states [0035]

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Claims 3, 5-7, 9-11, 14-19 and 22-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Traeber (Fig. 3), Symes et al. (Fig. 3), Ashley et al. (Figs. 3-6), the two patents to Cohen (Fig. 4 in both), Hasquine (Fig. 6A), Chen et al. (Fig. 2A) and Eyuboglu et al. (Fig. 5) are all cited to show a second trellis different from the first in trellis decoding. Ree and Jekal both are cited to show parallel decoders and Markarian et al. is cited to show the use of trellis decoders for SNR measurements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Stephen Dildine whose telephone number is 703-305-5524. The examiner can normally be reached on M, Tu, Th, F 5:55 am to 4:25 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



R. Stephen Dildine

R. Stephen Dildine  
Primary Examiner  
Art Unit 2133